

**REGION 1 NATIONAL WILDLIFE REFUGE SYSTEM
INVENTORY & MONITORING PROGRAM**

**ANNUAL WORK PLAN
FY 2012**

**DIVISION OF NATURAL AND CULTURAL RESOURCES
BRANCH OF REFUGE BIOLOGY**

November 2011

1. Introduction

1.1. Purpose, Vision, and Goal of the Region 1 Inventory and Monitoring (I&M) Initiative

This annual work plan (AWP) describes implementation of the Region 1 (R1) I&M program during FY2012. The purpose of the National Wildlife Refuge System (NWRS) I&M program is to collect and synthesize scientific information which supports management at multiple geographic scales and informs decisions at all organizational levels. The program's vision is to address the NWRS Mission critical information needs and to help plan and evaluate the effectiveness of conservation strategies implemented by the U.S. Fish and Wildlife Service (Service) and its conservation partners in the face of accelerating climate change and growing threats from other environmental stressors. The I&M program is being developed to integrate with and support the Service's landscape conservation efforts such as Landscape Conservation Cooperatives (LCCs) and Strategic Habitat Conservation (SHC).

The NWRS I&M program is based on three documents: *Strategic Plan for Inventories and Monitoring on National Wildlife Refuges: Adapting to Environmental Change (Strategic Plan)*; *Operational Blueprint for Inventories and Monitoring on National Wildlife Refuges – Adapting to Environmental Change (Operational Blueprint)*; and *Addendum to the Strategic Plan (Addendum)*. The *Strategic Plan* provides background and rationale for the NWRS I&M program as well as summarizes and provides a long-term perspective. The *Operational Blueprint* describes how the nationally coordinated program will be initially implemented during its early years to support I&M activities at national, regional, LCC, and refuge scales. The *Operational Blueprint* also establishes the initial structure of the I&M program and identifies priority tasks.

The overarching goal of the I&M program is to provide support for documenting the status, assessing the condition, and detecting changes in the NWRS' diverse fish, wildlife, and plant communities; physical resources including water, air, and soils; and ecological processes in order to support science-based conservation planning and management at multiple spatial scales.

1.2. Region 1 I&M Initiative Organization and Emphasized Work Areas

In order to provide the greatest benefit, the R1 I&M program will focus efforts where there are overlaps among national, regional, and refuge priorities (Figure 1). National direction is derived from the NWRS I&M program as well as NWRS and Service priorities. The regional priorities are being identified by Service programs and LCC leadership teams in support of trust resource (NWRS Resources of Concern) and other high-priority wildlife and habitat management/conservation issues in R1. At the refuge level, needs identified through the CCP process (goals and objectives) as well as other landscape issues influencing refuge management are identifying priorities for each refuge's I&M activities. For each refuge, the I&M program supports implementation of

adaptive management by evaluating achievement of its goals and objectives. During development of the R1 I&M program during FY2012, we will focus on overlapping priorities at all three levels to provide the greatest benefit from the program. The R1 I&M staff will continue to collaborate with personnel from other Service divisions (Refuge Biology, Migratory Birds, Fisheries, Fire, Endangered Species, Water Resources Branch, and Planning) so that I&M activities have multiple benefits within the region as they relate to providing assistance to refuges.

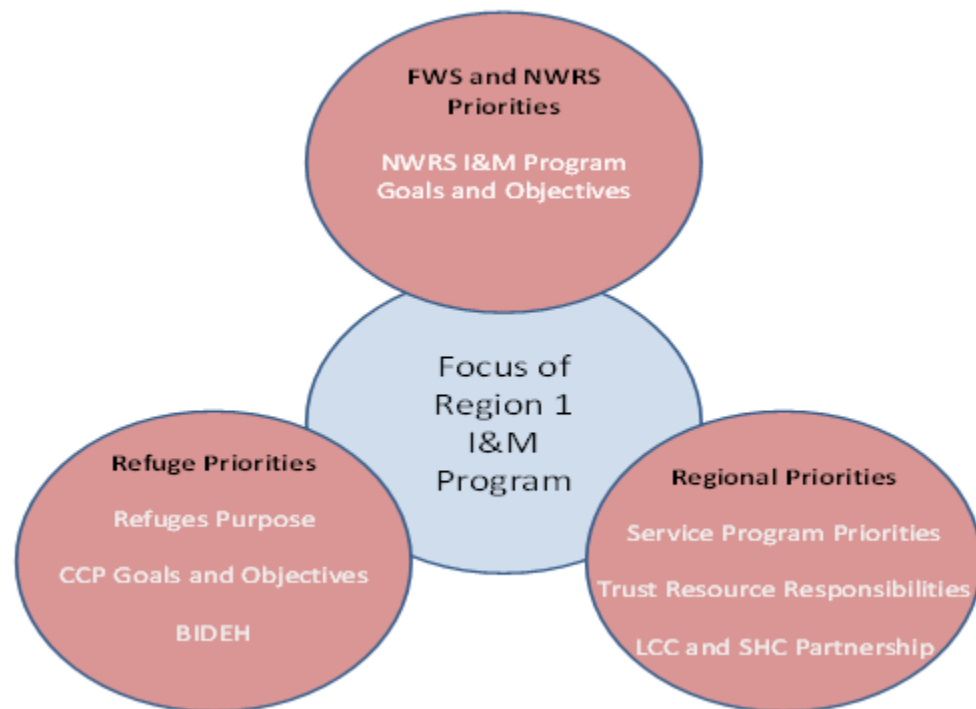


Figure 1. The Region 1 I&M program relative to initiatives of the NWRS as well as other Service Divisions.

Priority tasks for the NWRS I&M program during FY2012 include each region working on one or more pilot I&M projects identified in the *Operational Blueprint*. Region 1 will assume a leadership role in pilot work for I&M related to refuge adaptive management. Specifically, we will work with our contractor (Alsea Geospatial) for the Refuge Habitat Management Database (RHMD) to beta test the first version of the application by select refuge staffs during FY2012. The RHMD is intended to support adaptive management by facilitating annual habitat work planning as well as implementation and evaluation of refuge habitat management programs. Regional and field I&M program staff will facilitate training and implementation of RHMD testing at select refuges within LCCs. They will collect feedback from training and implementation that will be used to identify needed enhancements to RHMD to ensure the database is user friendly when distributed for use by the NWRS. In addition, R1 will likely contribute to other pilot I&M projects, such as hydrogeomorphic modeling (HGMs), water resource inventory and assessments (WRIAs), water quality monitoring, invasive species, and biotic resource inventories and monitoring.

Region 1's approach for FY2012 will include a strong educational and organizational component and will support the Phase 1 tasks under each objective identified in the *Operational Blueprint*. The development and implementation of the R1 I&M program will be an iterative (adaptive) process. I&M program activities will be based upon long-term NWRS program goals that are stepped down to short-term objectives with associated work products as articulated in this AWP (see Table 2 below for Conference, Workshops and Meetings; Refuge I&M Reviews; Reports/Publications/Presentations; and Technical Assistance).

1.3. Integration of I&M with the Regional Refuge Biology and Other FWS Programs

During FY 2012, R1 I&M program staff will continue to build and foster relationships with the Regional Refuge Biology staff as well as other FWS programs (Fire, Invasives, ES-DEQ, Water Resources Branch, Migratory Birds, and Planning). By building these relationships, we intend to enhance support directly to refuge staffs for their resource management programs and needs. The I&M program is being designed to integrate with and support existing refuge biological programs. For this program to be successful in R1, I&M program staff must work collaboratively to address the core principles for the NWRS program while addressing regional (including LCC) and refuge-specific needs. At the refuge level, needs identified through the CCP process (goals and objectives) as well as other landscape issues influencing refuge management will identify priorities for each refuge's I&M activities.

For each refuge, the I&M program will support implementation of adaptive management by evaluating achievement of refuge goals and objectives. Each refuge will have unique needs depending on its resources of concern, environmental conditions, and management challenges. In order to build a program that addresses the I&M needs of individual refuges throughout the region as well as contribute to the information needs for LCCs, regional I&M staff must become knowledgeable about the resource management programs at field stations. I&M biologists will familiarize themselves with refuge habitats and management issues as well as develop working relationships with refuge staff. Field biologists will become familiar with the diverse array of resource management issues to effectively support the I&M program activities on refuges within the region as we develop the NWRS program.

Therefore, I&M personnel will continue to conduct site visits to refuges/refuge complexes to conduct I&M reviews (needs assessments) throughout FY 2012. We expect these reviews to assess current and needed I&M activities as a basis for identifying a prioritized set of surveys for the future (see deliverables below). Preparation of a prioritized set of surveys addresses priority program tasks for assembling abiotic datasets (Task 1A) and compiling legacy data (Task 1C) as well as fulfills the requirements for Part 1 of a refuge I&M plan as specified in the new, draft NWRS I&M policy (863 FW 1). By completing Part 1 for each refuge, there will be an immediate benefit to refuge staff while providing the foundation to build the regional and NWRS I&M programs by incorporating field-level needs.

1.4. Coordination with partners including Landscape Conservation Cooperatives (LCCs)

We recognize this I&M program is NWRS-centric, but it is not refuge-exclusive. Collaborative efforts where priorities and needs overlap will likely provide information for other Service programs as well as LCCs. R1 consists of four LCCs (see Appendix 2): North Pacific LCC, Great Northern LCC, Great Basin LCC, and Pacific Islands Climate Change Cooperative (PICCC). LCCs in R1 are staffed with I&M biologists who are learning about the NWRS; its history; and current conservation/management initiatives, strategic plans (including CCPs), and relevant policy and handbooks. The R1 I&M program will facilitate implementation of the Service's landscape conservation efforts such as LCCs and SHC. The regional priorities will be identified by Service programs and LCC leadership teams in support of trust resource and other high-priority wildlife and habitat management/conservation issues in R1.

2. Staffing

The current six R1 I&M staff members (Appendix 1) came to the program during FY2010 and early FY2011. Since January 2011, the Deputy NWRS Chief (Ben Harrison) has served as acting RRB/Cultural Resources Branch Division Chief. The vacant RRB/Division Chief position has supervisory responsibilities over Assistant RRBs, Regional I&M Program staff, and Cultural Resources Branch staff. Because of budget concerns, a regional decision was made to leave the RRB/Division Chief position vacant during FY2012, so the Deputy NWRS Chief will continue to supervise regional I&M staff throughout FY2012.

Considering the complexity and geographic extent of resources on refuges and monuments within Pacific Islands and the geographic area of the PICCC, the R1 I&M Specialist position (Jean Kenyon) is located in Honolulu. In addition to supporting development and implementation of the refuge-specific program, Jean has broader responsibilities including coordination with PICCC staff and its steering committee. She is responsible for LCC products (e.g., species-habitat models) where they overlap with NWRS and Service and other federal agencies priorities as well as providing scientific information developed through the NWRS I&M program that supports development of the PICCC. Because NWRS I&M and PICCC are developing concurrently, Jean will spend considerable effort assisting with development of the NWRS I&M program (e.g., coordinating with other agencies for large-scale monitoring of NWRS marine resources, development of monitoring approaches for marine systems, site visits to refuges, collecting available I&M data, identifying refuge program priorities). Jean will continue to support the Service's PICCC staff with development of priorities and approaches for implementation of this cooperative.

Please refer to the organizational chart in Appendix 1. All R1 I&M program personnel staff are listed below.

Regional office-based I&M staff:

Kevin Kilbride -- Regional I&M Coordinator

Erin Stockenberg -- Regional I&M Data Manager

Jean Kenyon - I&M Specialist

Pacific Islands Climate Change Cooperative:

Jared Underwood – Zone I&M Biologist

North Pacific LCC:

Brian Root – Zone I&M Biologist

Great Northern and Great Basin LCCs:

Jenny Barnett – Zone I&M Biologist

3. Planned Activities and Anticipated Products

This section highlights and summarizes the anticipated accomplishments for the R1 I&M program staff during FY2012, which are detailed in Tables 1 and 2. Table 1 summarizes accomplishments by the major areas of focus (*Operational Blueprint* tasks) for the R1 I&M program; whereas, Table 2 lists specific work activities under four main groupings (Conferences, Workshops, Trainings, and Meetings; Refuge I&M Reviews; Reports, Publications, Presentations; and Technical Support).

I&M program staff work activities during FY2012 will encompass projects addressing the initial resource-oriented I&M tasks identified in the *Operational Blueprint* (see Table 1). Although the fire regime shifts task (Task 2B) was not considered in R1 during FY 2011, it will be addressed during FY 2012. Specifically, we will be providing review and technical consultation on the R1 Fire Management Program's development of its web-based mapping tool with information about impacts analysis for the habitat types most frequently subjected to prescribed fire treatments. This tool will be modeled after the FWS Lands Mapper (Cadastral Program), which will allow users to access impacts analysis reports and overlay fire-related spatial data with refuge boundaries.

Many I&M program activities and initiatives will be started during FY2012; however, we expect that they will be on-going for years into the future. We will evaluate implementation and make adjustments as needed based upon program development and annual evaluations. Specific products and technical support identified below will be the outcome of efforts during FY 2012. Given the size, accessibility, and complexity for Hawaiian and other US Pacific Islands, we recognize that there will likely need to be flexibility in deliverables and other work products within this geographic area.

Table 1. Region 1 I&M Program Planned Activities, Products, and Staffing Utilization during FY2012.

Blueprint Task(s)	Project or Theme (Work Activity)	Product(s)	I&M Staff
ASSEMBLE EXISTING ABIOTIC DATA SETS FOR NWRs LANDS			
1A	Contingent upon available funding from Natural Resource Program Center (NRPC), compile and consolidate refuge-specific abiotic data in a geodatabase. Coordinate with Water Resource Branch and Refuge Information Branch to customize RLGIS feature classes to accept water resource inventory data	Abiotic geospatial data added to RLGIS for R1 NWRs (water flow, points of diversion, WCS with invert elevations, impaired waters, wetland names).	Erin Stockenberg
	During refuge visits to conduct needs assessments, assess and evaluate completeness of existing data and identify gaps for abiotic data (see Tasks 1F and 3A below)	Initiate Part 1 of I&M plan for 50% of R1 NWRs.	All
	Continue to coordinate on a multiple phased impaired waters project with USGS-BRD scientists (PIs), Michael Higgins, and Region 3 representatives. This project is intended to provide best available water quality information regarding refuge waterbodies for WRIAs and CAPs.	USGS to deliver raw datasets for with most current 303d, 305b, and TMDLs for all units of the NWRs; update existing summary reports for NWRs in OR and WA; develop a data sharing agreement with EPA (Doug Norton) to get the most current CWA data and highest resolution NHD.	Erin Stockenberg, Kevin Kilbride
	Assist refuge staffs with LiDAR acquisitions for R1 NWRs plus on the ground survey support and QA/QC.	LiDAR at appropriate contour resolution for resource mgmt at R1 NWRs.	Erin Stockenberg
	Develop a joint data management plan with the Regional Office Refuge Information Branch for storing refuge-level abiotic datasets.	Regional Data Management Plan.	Erin Stockenberg
CONDUCT HGMs			
1B	Coordinate with national I&M team and HGM contractor to integrate WRIA with HGM processes.	Conference calls and document reviews.	Erin Stockenberg, Kevin Kilbirde
	Coordinate with HGM contractor and refuge staffs, and participate in site visits for 3 R1 NWR HGM kick-off meetings. Conduct data mining needed to support 2 on-going and 3 new HGMs. Review draft HGM reports for 4 refuges.	Phase 1 HGM reports to be completed for 1 NWR. HGM Excel spreadsheet to be completed for each of the 5 NWRs. Phase 2/3 reports to be completed for 4 NWRs. Phase 4 reports to be completed for 4 NWRs. Phase 6 report for 1 NWR.	All
LEGACY DATA FOR NWRs			

Blueprint Task(s)	Project or Theme (Work Activity)	Product(s)	I&M Staff
1C	Continue to coordinate with national I&M team for development of Geographically Referenced Archival System (GRAS) to store existing refuge I&M data, reports, and I&M plans for refuges.	Participate on webinars, conference calls, and meetings evaluating the storage of refuge legacy data in GRAS	All
	During refuge visits to conduct needs assessments, assist refuge staffs in collecting information about I&M activities that have been conducted on and adjacent to the refuge that represent legacy data (see Tasks 1F and 3A below).	In conjunction with working on Part 1 of I&M plan in PRIMR for approximately 50% of the R1 NWRs, include metadata for legacy data, where possible.	Jared Underwood, Jean Kenyon, Brian Root, Jenny Barnett
	When requested, assist refuge staff with analyzing legacy biotic and/or abiotic datasets.	Reports provided to refuge staff, where some could be submitted for peer-reviewed publication.	Jared Underwood, Jean Kenyon, Brian Root, Jenny Barnett
	Assist refuge staff to prepare for and participate in the implementation of the GRAS pilot at Malheur NWR	Catalogue and scan legacy scientific information stored in the distributed database for the GRAS pilot projects.	Erin Stockenberg
BIOTIC I&M ON NWRs			
1D	Develop and distribute a RFP to solicit refuge I&M projects. For received proposals under the RFP, review, evaluate, and prioritize them for equitable distribution of available program funding among the R1 zones. Contingent upon available program funds, distribute \$ and then support implementation of refuge I&M projects.	Memo identifying project rankings and selections for available funding. As needed, provide assistance with funding instruments such as interagency agreements, contracts, and acquisition requests. Expected products will include protocols, database applications, progress reports, and final reports.	All Note: Role of I&M staff is primarily limited to the funding process: developing RFP; reviewing and selecting proposals; and limited assistance in contracting and/or purchasing. Refuge staffs, who prepare the proposals under the RFP and interface with contractors (where applicable), are responsible for final reports and projects
	Coordinate with R1 Pollinator Coordinator to continue inventories of select invertebrates on refuge lands. Enter inventory data into Pollinator database (MS Access).	Review report summarizing results of bee inventories conducted on R1 NWRs. Inventory data entered into R1 Pollinator database.	Erin Stockenberg, Kevin Kilbride, Jenny Barnett, Brian Root
	Coordinate with USGS researches on winter bat inventory on 5 NWRs in the GN LCC.	Species list of bats active during winter. Begin to identify bat hibernacula in cliff/talus habitat	Jenny Barnett
	Coordinate with Refuge Information Branch to centralize RLGIS feature classes to accept biotic data. Develop a joint data management plan with the Regional Office Refuge Information Branch for storing refuge-level biotic datasets.	Biotic geospatial data added to RLGIS for Region 1 NWRs (habitat, vegetation, animal/plant locations, CCP alternatives, monitoring data).	Erin Stockenberg

Blueprint Task(s)	Project or Theme (Work Activity)	Product(s)	I&M Staff
DEVELOP STANDARDIZED VEGETATION MAPPING FOR REFUGE LANDSCAPES			
1E	Continue to participate on the national I&M team developing a range of standards and protocols for veg mapping considering refuge-specific needs for resource management.	Participate on regular conference calls for national veg mapping team.	Erin Stockenberg
	Provide assistance to the refuge staff at Camas NWR with the on-going veg mapping pilot project to integrate/crosswalk with refuge habitat mapping as well as HGM and WRIA efforts. Assist with preparing and reviewing s report for veg mapping pilot project to be generated by RO Refuge Information Branch staff.	Report for veg mapping pilot project from RO Refuge Information Branch staff.	Erin Stockenberg, Jenny Barnett
SUPPORT ADAPTIVE MANAGEMENT			
1F, 3A	Develop a consistent approach to conduct Refuge I&M reviews (needs assessments) to assist refuge staffs in developing Part 1 of a Refuge I&M Plan.	Develop criteria and database tool for ranking surveys in Part 1 of refuge I&M plans.	All
	Conduct site visits to assist refuge staffs in conducting I&M needs assessment to develop Part 1 of a Refuge I&M Plan.	Initiate Part 1 of I&M plan in PRIMR for approximately 50% of the R1 NWRs. Contingent on available refuge staff time and 863 FW1 policy status, complete (approve) Part 1s started last FY and this year for R1 NWRs,	Jean Kenyon, Jared Underwood, Brian Root, Jenny Barnett
	Conduct workshop for training beta testers on the basics of using RHMD. Provide support for R1 refuge staffs that will be beta testing RHMD until April. Summarize results of the beta testing to identify needed enhancements for contractors to develop version 2 of the database for distribution and use by refuge staffs throughout the NWRs.	Beta version of RHMD for regional/national rollout to refuge staffs to facilitate adaptive resource management. Report summarizing enhancements identified during beta testing by region. Considering the extensiveness of comments during beta testing, potentially deliver the second version of RHMD to the NWRs.	All
	Provide ongoing technical assistance and guidance on adaptive management, especially in terms of CCP development for R1 NWRs.	Provide assistance with development of alternatives chapters for R1 CCPs, especially resource mgmt goals and objectives as well as I&M strategies.	All

Blueprint Task(s)	Project or Theme (Work Activity)	Product(s)	I&M Staff
	Continue to coordinate with RO Fire staff to standardize hazardous fuels treatment surveys (smoke, fuels, weather, fire behavior, fuels reduction) for R1 I&M Plans (PRIMR). GIS technician (SWCA contract) assisting R1 NWRs with hazardous fuels perimeter mapping and associated metadata entry into National Fire Plan Operations and Reporting System (NFPORS).	Template surveys for hazardous fuels treatment surveys for use in PRIMR. Incorporate template surveys into R1 I&M plans, where appropriate. Geodatabase files with implementation information regarding hazardous fuel treatments for R1 NWRs. Shape files with fuel treatments for R1 NWRs.	All
CONDUCT REFUGE WRIAs			
2A	Coordinate with Water Resources Branch to schedule and conduct new WRIAs on R1 NWRs. See Task 1A (assembling abiotic data sets stored in a geodatabase - RLGIS).	Contingent upon additional support, abiotic geospatial data layers added to RLGIS for R1 NWRs to start WRIA reports and support new HGMs.	Erin Stockenberg, Kevin Kilbride
	Provide input and coordinate with the national water team developing water quality assessment tools for the WRIA process.	Participate in beta testing and development of the WRIA database.	Kevin Kilbride, Erin Stockenberg
	Work with national water team, WO-DEQ, and USGS-BRD to start a FY11 funded project to develop a water quality assessment tool/procedure in conjunction with the WRIA process. Tool will evaluate water quality of existing and proposed refuge water supplies.	Conference calls and reviews of conceptual approach for the WQ assessment tool and associated handbook for existing refuge water supplies under development by USGS-BRD PIs. PIs also prepare report on reliability of water quality benchmarks for select contaminants.	Kevin Kilbride, Erin Stockenberg
	Coordinate with regional hydrologists in Water Resources Branch to prepare, review, and complete WRIA reports for R1 NWRs.	Complete 5 WRIA reports for R1 NWRs. If additional support is provided by NRPC, then more WRIA reports may be completed during this FY.	All
SHIFTS IN FIRE REGIMES			
2B	Provide review and technical consultation to R1 Fire Management Program for development of a web-based mapping tool with information about impacts analysis for the habitat types most frequently subjected to prescribed fire treatments.	Assist with development of a web-based mapping tool modeled after the FWS Lands Mapper (Cadastral Program), which will allow users to access impacts analysis reports and overlay fire-related spatial data with refuge boundaries.	Erin Stockenberg
PILOT PROJECTS FOR INVASIVE PLANTS			

Blueprint Task(s)	Project or Theme (Work Activity)	Product(s)	I&M Staff
3A	Review pilot project protocols for the national invasive species I&M pilot project that is developing a range of protocols for invasive species mapping, inventorying, and monitoring.	Participate on webinars, conference calls, and review pilot project reports and subsequent protocols.	Kevin Kilbride
	Coordinate with Regional Refuge Biology administering the Invasives and Volunteers program for distribution of funding to conduct I&M and mapping activities for invasive species on R1 NWRs.	Review and participate in selection of proposals for funding and implementation on R1 NWRs	Kevin Kilbride
	When requested, provide technical assistance to refuge staffs with design and/or implementation of mapping and monitoring activities associated with implementing invasive plant and other pest mgmt activities on R1 NWRs.	Assist refuge staffs with preparing and implementing protocols for mapping and monitoring of invasive plants and other pests on R1 NWRs.	All
ECOSYSTEM VULNERABILITY			
4A	As requested, provide reviews of the refuge vulnerability assessment handbook and refuge reports	Review and provide comments on RVA handbooks and reports	Kevin Kilbride
	See Task 5A addressing vulnerability of coastal areas to sea level rise and other stressors.		
	See Task 2A for conducting WRI&As to assess threats to hydrological processes on the refuge.		
PHENOLOGY - NPN			
4B	Coordinate with pilot project implementation associated with NPN.	Participate on conference calls and review documents associated with continued development of the NPN pilot project for the I&M program.	Kevin Kilbride
BIRD MONITORING			
4C	Participate on national avian I&M team. Continue to coordinate with landbird monitoring initiative in OR and WA.	Participate on webinars and conference calls. Review documents that are prepared by the national team.	Jenny Barnett, Brian Root, Kevin Kilbride

Blueprint Task(s)	Project or Theme (Work Activity)	Product(s)	I&M Staff
	Develop and distribute a RFP to solicit refuge I&M projects. For received proposals under the RFP, review, evaluate, and prioritize them for equitable distribution of available program funding among the R1 zones. Contingent upon available program funds, distribute \$ and then support implementation of refuge I&M projects.	<p>Memo that will identified project rankings and selections for available funding. As needed, provide assistance with funding documents such as interagency agreements, contracts, and acquisition requests.</p> <p>Expected products will include protocols, database application, process reports, and final reports.</p>	<p>All</p> <p>Note: Role of I&M staff is primarily limited to the funding process: developing RFP; reviewing and selecting proposals; and limited assistance in contracting and/or purchasing. Refuge staffs, who prepare the proposals under the RFP and interface with contractors (where applicable), are responsible for final reports and projects</p>
	When requested, participate in and/or provide support for refuge-specific and region-based migratory bird I&M activities	Assist refuge staffs in preparing reports for improving the protocol; review refuge protocols; assist refuge staffs with implementing bird I&M activities.	All
	Coordinate with Migratory Bird Division to assess ongoing Seabird, Landbird, Waterfowl, Waterbird, Shorebird, and other migratory bird monitoring, and identify future needs and appropriate participation by individual refuges. This assessment is conducted in conjunction with refuge I&M reviews (See Task 1F).	Participate in meetings and conference calls to identify coordinated surveys to address refuge and/or regional needs.	All
MODELING OF SEA LEVEL RISE ON COASTAL REFUGES			
5A,5B	Review and provide support for the on-going project predicting the impact of storm waves and sea level rise at Papahānamokuākea MNM.	Review report to be prepared by UGSG-BRD PI.	Jean Kenyon, Jared Underwood
	Participate on Regional Climate Board (RCB) activities addressing coastal adaptation strategies and climate-savvy restoration.	Review and provide support for RCB activities, including workshops and webinars.	Kevin Kilbride
	Provide regional review and data management for Sea Level Affecting Marsh Model (SLAMM) analyses on-going for R1 NWRs plus 3 new starts for R1 NWRs.	Review and provide assistance with finalizing SLAMM reports for R1 NWRs.	Erin Stockenberg

Table 2. Region 1 I&M Program Work Activities Planned for FY2012.

Blueprint Task(s)	Work Activity	Planned Date	I&M Staff
CONFERENCES, WORKSHOPS, TRAININGS, AND MEETINGS			
All	Attend appropriate LCC meetings	Oct 2011 – Sep 2012	All
All	Refuge Habitat Management Database Workshop in Vancouver, WA	Dec 2011	All
All	Joint Reg. I&M Coordinators, NRLT, and FC staff meeting in Fort Collins	Jan 2012	Kevin Kilbride
All	Weekly Reg. I&M Coordinator conference calls	Oct 2011 – Sep 2012	Kevin Kilbride, Erin Stockenberg
All	Monthly Reg. I&M Data Manager conference calls	Oct 2011 – Sep 2012	Erin Stockenberg
All	Monthly Refuge Project Leader conference calls	Oct 2011 – Sep 2012	Kevin Kilbride, Erin Stockenberg
All	Monthly R1 I&M staff conference calls	Oct 2011 – Sep 2012	All
All	Joint meeting with RO Water Resources Branch, ES-Division of Environmental Quality, and I&M to discuss roles and responsibilities and integration of WRIAs, HGMs, and refuge water quality/water quantity monitoring	Oct 2011	Kevin Kilbride
All	Joint meeting with RO Planning to discuss integration of I&M and CCP planning for R1 NWRs	Nov 2011	Kevin Kilbride, Erin Stockenberg
1B	HGM kick-off meeting for Conboy Lake NWR	Oct 2011	Kevin Kilbride,
1B	HGM kick-off meeting for Nestucca Bay NWR	Oct 2011	Kevin Kilbride Brian Root
1F	Conference calls with beta testers of the RHMD in preparation for training workshop (Dec 2011)	Nov 2011	All
1F	Fire Effects Workshop for R1 NWRs	Nov 2011	Kevin Kilbride, Erin Stockenberg
1C	GRAS pilot project at Malheur NWR	Nov 2011	Erin Stockenberg
4C	Participate in Hawaiian Wetlands and Waterbirds Workshop	Oct 2011	Jean Kenyon, Jared Underwood
4A	Participate in invitational Pacific Islands Regional Climate Assessment Ecosystems Consensus Workshop	Jan 2012	Jean Kenyon, Jared Underwood
All	Participate in Annual Northwestern Hawaiian Islands Science Symposium	Jan/Feb 2012	Jean Kenyon, Jared Underwood
All	Participate in Annual Wildlife Society Meetings. Jared to deliver presentation (see below)	Nov 2011	Jared Underwood
All	Participate in relevant CCP planning meetings and briefings for R INWRs	Oct 2011 – Sep 2012	Brian Root
All	Participate in relevant CCP planning meetings and briefings for GN and GB LCC NWRs	Oct 2011 – Sep 2012	Jenny Barnett
All	Participate in relevant CCP planning meetings and briefings for PICCC NWRs	Oct 2011 – Sep 2012	Jared Underwood, Jean Kenyon
Training	Complete ATV certification training	Oct 2012	Brian Root
Training	Renew Hazwoper certification	TBD	Brian Root
Training	NCTC Basic Supervisor Training	Feb 2012	Kevin Kilbride
Training	Attend NCTC course “Data Analysis IIIB: Environmental Sampling and Monitoring using R”	Dec 2011	Jared Underwood, Jenny Barnett
Training	Attend “Refuge Habitat Management Database (RHMD) Training Workshop”	Dec 2011	All
Training	SonoBat Software Training Workshop	Jan 2012	Jenny Barnett
Training	Attend NCTC course, USFWS Employee Foundations	Mar 2012	Jean Kenyon
REFUGE I&M REVIEWS (NEEDS ASSESSMENTS)			

Blueprint Task(s)	Work Activity	Planned Date	I&M Staff
1A, 1C, 1 F, 3A	For NP LCC, conduct the following site visits to conduct needs assessments to prepare Part 1 of the I&M Plan using PRIMR:		Brian Root
	• Oregon Coast NWRC (6 refuges)	Fall/Win 2011	
	• Washington Maritime NWRC (6 refuges)	Fall/Win 2011	
	• Ridgefield NWRC (4 refuges)	Fall/Win 2011	
	• Willamette Valley NWRC (3 refuges)	Winter 2012	
	• Willapa NWRC (3 refuges)	Winter 2012	
	• Nisqually NWRC (3 refuges)	Win/Spr 2012	
	• Tualatin River NWR (1 refuge)	Spring 2012	
1A, 1C, 1 F, 3A	Continue work with NWRs in HI/Pac subregion to prepare Part 1 of the I&M Plan using PRIMR	Oct 2011 – Sep 2012	Jean Kenyon, Jared Underwood
1A, 1C, 1 F, 3A	For GN LCC, conduct the following site visits to conduct needs assessments to prepare Part 1 of the I&M Plan using PRIMR:		Jenny Barnett
	• Mid-Columbia River NWRC (1 refuge)	Nov 2011 – Apr 2012	
	• Inland NW NWRC (1 refuge)		
	• Sheldon-Hart Mt NWRC (1 refuge)		
	• SE Idaho NWRC (1 refuge)		
REPORTS/PUBLICATIONS/PRESENTATIONS			
All	R1 I&M Program Annual Report for FY2011	Oct 2011	All
All	R1 I&M Program Annual Work Plan for FY2012	Nov 2011	All
All	Publish manuscript in peer reviewed journal: Green MT, Kilbride K, Paveglia F. 2011. Use of bird conservation plans for development of management plans for national wildlife refuges in Washington, Oregon, and California. Pages 10-14 <i>In</i> Informing Ecosystem Management: Science and Process for Landbird Conservation in the Western United States. FWS Biological Technical Publication BTP-R1014-2011.	Nov 2011	Kevin Kilbride
All	Published manuscript in peer reviewed journal: Altman B, Green MT, Bresson B, Stockenberg E, Casey D, Casey S. 2011. A watershed analysis for establishing local population objectives for Pacific-slope flycatcher and a suite of mid- to late-successional Pacific Northwest landbirds. Pages 18-25 <i>In</i> Informing Ecosystem Management: Science and Process for Landbird Conservation in the Western United States. FWS Biological Technical Publication BTP-R1014-2011.	Nov 2011	Erin Stockenberg
1B	Task reports prepared by contractor for on-going and new HGMs on R1 NWRs	Oct 2011 – Sep 2012	All
1D	Peer-reviewed manuscript published, Schopmeyer SA, Vroom PS, Kenyon JC. 2011. Spatial and temporal comparisons of benthic composition at Necker Island, Northwestern Hawaiian Islands. Pacific Science 65(4):405-417	Oct 2011	Jean Kenyon
1D	Abstract submitted to 12 th International Coral Reef Symposium: Monitoring supports establishment of the Pacific Remote Islands Marine National Monument	Oct 2011	Jean Kenyon
1D	Give a poster presentation, “Status and Trend of Hawaii’s Endangered Endemic Waterbirds” at Annual Wildlife Society Meetings Kona, HI	Nov 2011	Jared Underwood
1D	Peer-reviewed manuscript accepted for publication in Atoll Research Bulletin: Kenyon JC, Bonito V, Wilkinson C. Characterization of coral communities at Wake Atoll in the remote central Pacific Ocean.	2012, publication month TBD	Jean Kenyon
1D	Prepare manuscript for peer-reviewed Proceedings of the 12 th International Coral Reef Symposium: Kenyon JC, Maragos JE, Vroom PS. Monitoring supports establishment of the Pacific Remote Islands Marine National Monument	Dec 2011-Feb 2012	Jean Kenyon
TECHNICAL ASSISTANCE			
All	Review and comment on NatureServe’s Refuge Vulnerability Assessment Handbook (DTS assignment)	Oct 2011	Kevin Kilbride
All	Review CCP pre-plans, alternatives chapters, and admin drafts for R1 NWRs	Oct 2011 – Sep 2012	All

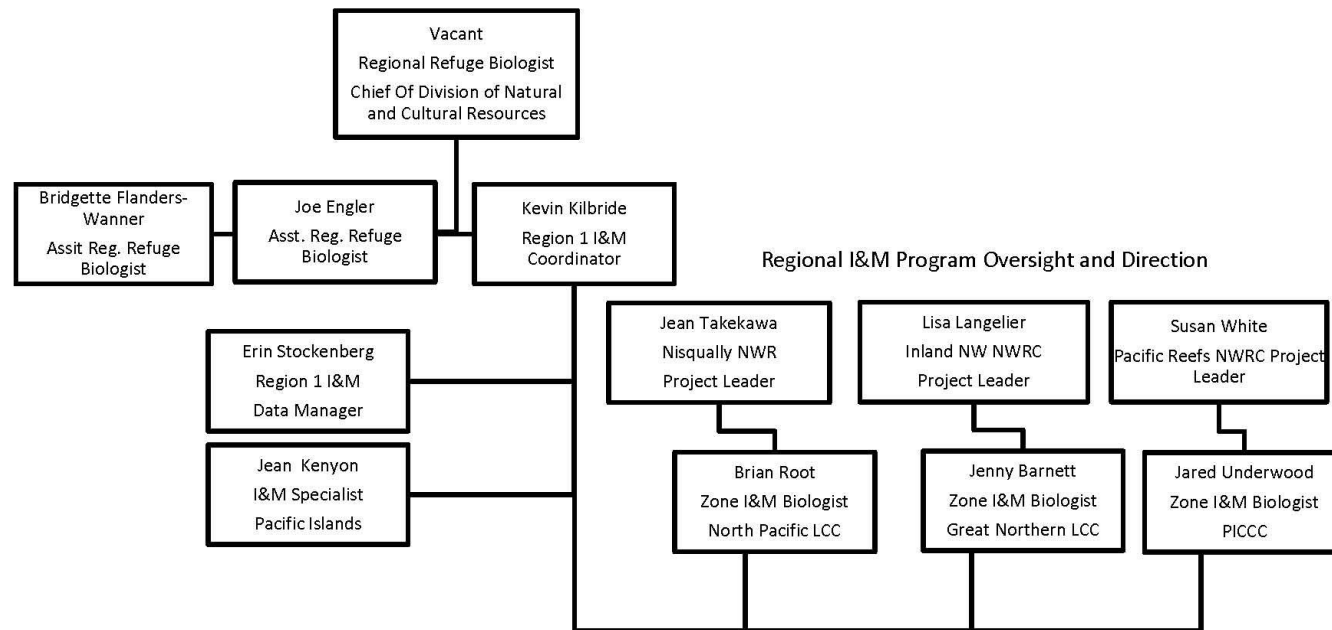
Blueprint Task(s)	Work Activity	Planned Date	I&M Staff
All	Review PICCC's Integrated Science Framework	Oct 2011	Jean Kenyon, Jared Underwood, Kevin Kilbride
All	Review National Fish, Wildlife, and Plant Climate Adaptation Strategy	Nov 2011	Kevin Kilbride
1C	Assist refuge staff with implementation of GRAS pilot	Nov 2011	Erin Stockenberg
1F	Review draft Papahānaumokuākea MNM Coral Bleaching and Disease Response Plan	Nov-Dec 2012	Jean Kenyon
1F	Facilitate beta testing and training of the RHMD on refuges	Dec 2011	All
1A	Support refuge staffs using the PRIMR database to complete Part 1 of I&M plan for Region 1 refuges	Oct 2011 – Sep 2012	All
1B	Coordinate with HGM contractor and refuge staff to initiate HGMs at James Campbell, Camas, Conboy Lake, and Nestucca Bay NWRs and provide assistance data mining and report/publication gathering.	Oct 2011 – Sep 2012	All
1B, 2A	Integrate WRIA and HGM process to improve product, efficiency, reduce costs, and redundancy.	Oct 2011 – Sep 2012	Kevin Kilbride, Erin Stockenberg
2A	Coordinate with National Water Team and WO-DEQ to develop a water quality assessment tool for integration in the WRIA process	Oct 2011 – Sep 2012	Kevin Kilbride, Erin Stockenberg
All	Assist NPLCC refuge staffs with surveys, sampling design, legacy data management, data analyses, and report writing/review, as requested	Oct 2011 – Sep 2012	Brian Root
4C	Assist with seabird survey photo-processing @ OR Coast NWRC	Fall/Winter 2012+	Brian Root
4C	Assist with seabird burrow-nester surveys @ WA Maritime NWRC	Spr-Sum 2012	Brian Root
4C	Help coordinate implementation of CA Current Seabird Monitoring, incl. relevant protocol development	Oct 2011 – Sep 2012	Brian Root
1F	Assist with waterfowl/waterbird/shorebird surveys @ Nisqually NWRC	Oct 2011 – Sep 2012	Brian Root
4A, 5A	Act as Nisqually NWRC Climate Change POC	Oct 2011 – Sep 2012	Brian Root
4C	Participate in annual Grays Harbor NWR shorebird festival	Apr 2012	Brian Root
4C	Participate in annual Nisqually Watershed Festival at Nisqually NWR	Sep 2012	Brian Root
All	Review Papahānaumokuākea MNM research permit applications and other refuge SUPs as requested	Oct 2011 – Sep 2012	Jean Kenyon, Jared Underwood
1F, 3A	Provide technical assistance for Rose Atoll, Palmyra Atoll, and Kingman Reef CCPs	Oct 2011 – Sep 2012	Jean Kenyon, Jared Underwood
All	Review & provide feedback to document, "Biological Program Standard Operating Procedures" prepared for French Frigate Shoals, Hawaiian Islands National Wildlife Refuge	Nov 2011	Jean Kenyon, Jared Underwood
All	Work with refuge staff to develop/improve FY12 I&M funding proposals	Oct-Dec 2011	Jean Kenyon, Jared Underwood
All	Assist with Biennial Monitoring on remote Pacific Refuges (Johnston Atoll NWR, Howland Island NWR, Baker Island NWR)	Feb -Mar 2012	Jared Underwood
4C	Assist with annual Forest Bird Monitoring on Hakalau Forest NWR	Mar-Apr 2012	Jared Underwood
4C	Assist with Bi-annual Waterbird Monitoring on James Campbell NWR	Jan & Aug 2012	Jared Underwood
All	Work with PICCC panel to evaluate, prioritize, and select FY12 PICCC research projects	Apr -May 2012	Jean Kenyon
All	Serve on panel to evaluate & select Abstracts submitted to Hawaii Conservation Conference and to organize concurrent conference sessions	May-July 2012	Jean Kenyon
4C	Assist James Campbell NWR with Endangered Waterbird Telemetry project	Oct 2011 – Sep 2012	Jared Underwood
All	Serve on National Team developing Prioritization Criteria for I&M surveys	Oct-Dec 2011	Jared Underwood
4A	Participate in iterative PICCC Integrated Science Framework planning process	Oct 2011 – Sep 2012	Jean Kenyon
All	Review & provide feedback on Laysan Island Monitoring Protocols, Hawaiian Islands National Wildlife Refuge	Oct 2011 – Sep 2012	Jared Underwood, Jean Kenyon

Blueprint Task(s)	Work Activity	Planned Date	I&M Staff
All	Serve as Program Lead and Mentor for Brigham Young University-Hawaii and James Campbell NWR Senior Project/ Refuge Experience Program.	Oct 2011 – Sep 2012	Jared Underwood
4A	Participate in Papahānuamokuākea Marine National Monument Climate Change Working Group	Oct 2011 – Sep 2012	Jean Kenyon
All	Review of Malheur NWR I&M Plan	Apr 2012	Jenny Barnett
4C	Grassland Songbird Inventory – Kootenai NWR	May 2012	Jenny Barnett
All	Provide support for regional GIS and GPS training for field stations	Oct 2011 – Sep 2012	Erin Stockenberg

4. Budget Narrative and Budget

R1 I&M program base funding for FY2012 is \$1.973M. The expenditure for salaries and associated MC for the six I&M positions is \$822K. We anticipate allocating approximately \$825K to support selected I&M projects received from a request for refuge proposals. Remaining program funds will be used to cover operational costs (e.g., travel, vehicle fuel/maintenance, office overhead, office and I&M supplies) and other expenses (e.g., contracts, agreements) for the program.

Appendix 1: Organization of Region 1 Inventory and Monitoring Program



Appendix 2. National Wildlife Refuges in Region 1 for the North Pacific, Great Basin, and Great Northern LCCs, as well as the Pacific Island Climate Change Cooperative.

